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| 10/577,758 | 04/28/2006 | Lisebeth Van Pieterse | NL 031297 | 6966 |

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P.O. BOX 3001
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| EXAMINER |
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VERDERAME, ANNA L

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| ART UNIT | PAPER NUMBER |
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1795

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01/12/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/577,758 | Applicant(s) VAN PIETERSON ET AL. | |
| | Examiner ANNA L. VERDERAME | Art Unit 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The amendment filed on 11/3/2008 has been carefully considered. A response is presented below.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 7-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Horie et al. 2003/0214857.

Claims 1, and 7-11 are anticipated by example 15(0274-0278).

In example 15 a (ZnS)₈₀(SiO₂)₂₀ upper dielectric layer is formed to have a thickness of 17 nm. This layer will have a ratio of λ/d of $5.1 \cdot 10^8 \text{ W m}^{-2} \text{ K}^{-2}$. λ for (ZnS)₈₀(SiO₂)₂₀ can be found in applicant's specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie et al. 2003/0214857.

In example 11, Horie et al. teaches an optical recording medium comprising a 95 nm first protective layer of ZnS-SiO₂, an (Sb_{0.92}Sn_{0.08})_{0.77}Ge_{0.15}In_{0.08}(70.84% Sb, 6.16%Sn, 15% Ge, and 8% In) recording layer having a thickness of 18 nm, a second protective layer of ZnS-SiO₂ having a thickness of 27 nm, a GeN layer having a thickness of 3nm(fourth auxiliary layer) and an Ag reflective layer having a thickness of 200 nm(third auxiliary layer)(table 3). This recording composition falls outside the applicant's recited range. It is the position of the examiner that the 3nm thick GeN layer acts as an anti-sulfuration layer between the sulfur containing upper protective layer and the Ag reflective layer.(heat sink layer)

In example 8 a recording composition having 64% Sb, 16% Sn, 18% Ge, and 2% Ag is taught. This recording composition falls within the applicant's recited range. A general formula for the recording composition according to this invention is taught in the abstract.

Use of SiN as the dielectric material for the protective layers is taught at (0138). Nitrides of Hf, Si, or Ge as materials to form the protective layer are taught at (0137). Oxides of TA, In, or Sn are also taught at (0137).

Thicknesses for the upper-protective layer range from 1-200nm(0143). An upper protective layer having a thickness in the range of 1-10 nm would meet the limitation recited in instant claim 2 and thinner layers would of course provide for

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faster cooling (rapid cooling structure) and allow the medium to be used at higher recording velocities. Horie et al. exemplifies a ZnS-SiO₂ protective layer having a thickness of 17 nm in table 5.

The most preferable thicknesses for the recording layer are disclosed to be in the range from 10-20nm(0125). Recording layers having a thickness in the range of 10-14 nm would meet the limitations of instant claim 4 **and would represent the most preferable range recited by Horie et al.**

Recording speeds as high as 38.4m/s are disclosed for inventive examples(0317).

The ability to use a thicker layer of a more conductive material as opposed to using a thinner layer of a less conductive material does not constitute an unexpected result.

It would have been obvious to one of ordinary skill in the art to modify the optical recording medium taught in example 11 of Horie et al. by using the phase-change composition of example 8 and forming the recording layer to have a thickness of from 10-14 nm as taught at (0125) with the reasonable expectation of forming a useful recording medium. Further, it would have been obvious to form the upper protective layer of ZnS-SiO₂ to have a thickness of from 1-9 nm based on the disclosure at (0143) and with a reasonable expectation of success.

The upper protective layer of (ZnS)₈₀(SiO₂)₂₀ having a thickness in the range of 1-9 nm will meet the limitations recited in instant claims 1-2. Though Horie et al. may be silent in regard to setting a ratio between the heat conduction and the

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thickness of the upper protective layer, Horie et al. teaches materials and thicknesses for the upper protective layer that are identical to those taught by the applicant. A $(\text{ZnS})_{80}(\text{SiO}_2)_{20}$ having a thickness in the range of 1-9 nm will inherently possess the qualities recited in instant claim 1. As with the applicant's invention, the media of Horie et al. are capable of high speed recording.

Response to Arguments

Claim 2 has not been rejected under 35 U.S.C. §102(b). in view of Horie et al. It has been shown that the ratio λ/d of a $(\text{ZnS})_{80}(\text{SiO}_2)_{80}$ film having a thickness of 17 nm is $5.1 \times 10^8 \text{ W m}^{-2} \text{ K}^{-2}$.

Horie et al. also discloses that the upper protective layer may have a thickness in the range of 1-200 nm. This includes the range of 1-10 nm recited by the applicant in claim 2 and thinner layers would of course provide for faster cooling (rapid cooling structure) and allow the medium to be used at higher recording velocities. The applicant has the burden of showing unexpected results obtained when forming a ZnS-SiO₂ layer having a thickness in the recited range. The examiner notes that expected results include changes in conductivity of the film due to varying the thickness and the material used.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA L. VERDERAME whose telephone number is (571)272-6420. The examiner can normally be reached on M-F 8A-4:30P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571)272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anna L Verderame/
Examiner, Art Unit 1795

/Martin J Angebranndt/
Primary Examiner, Art Unit 1795